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ABSTRACT

Activities to promote the transfer of theoretical knowledge into clinical practice have been developed to facilitate learning by individuals with various learning styles, reduce student stress, and improve teaching methods in a baccalaureate nursing program at the California State University, Chico. Specific activities included innovative applications of critical incidents, feedback lectures, case studies, and computer-assisted interactive video instruction. The feedback lecture was developed out of need to accomplish three goals: (1) integrate teaching and learning styles; (2) increase student involvement; and (3) broaden critical thinking processes. The class format was changed to include a shorter lecture with audio-visual materials, presentation of a class activity, and group discussion. Simulation materials have been developed to assist students in using a decision-making model to work through assigned clinical problems, which include simulated encounters of critical incidents designed to target specific theoretical content and to stimulate general discussion of the topics presented. Case studies have also been developed to pull the entire nursing program together; they include medical-surgical and maternal-child nursing situations. (DJR)

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Facilitating Critical Thinking in Clinical Practice

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FACILITATING CRITICAL THINKING IN CLINICAL PRACTICE

INTRODUCTION

As nurse educators there have been frustrations because of the stress students experience in the medical/surgical semester. The faculty are acutely aware of the heavy reading load the students must complete to pass the examinations in the course. In addition, the lectures are two to three hours in length and contain complex pathophysiological concepts and nursing care. While the students get more information than they really need, even "bare bones" data would be overwhelming. As students sit through the lectures, they are unable to keep up with the note taking let alone assimilate the information being presented. If, after hours of droning on and on, the faculty member begins to doze off and "space out", how can the students be blamed for doing the same? So what could be done to increase student learning and decrease student stress?

A light bulb went on when Dean Osterman came to CSU, Chico and talked about the feedback lecture and demonstrated how it could incorporate some exciting changes. Keep in mind that skepticism and resistance remained. It sounded excellent for other disciplines that were not so technical or life and death oriented Also, traditional methods were safe and did not involve the stress of change. There were several questions to be answered: Could any of the didactyl material be eliminated up? What if a large percentage of students flunked examinations? Ultimately, what if students failed the state board examination? These and many other problems had to be overcome.

After attending Dean Osterman"s workshop, the presenters were impressed and had tangible data to use. The decision was to test the student's learning styles, reevaluate the lectures, and examine the lectures to incorporate some of these ideas.

As the abstract points out, the presenters will share their experiences and how they are facilitating learning for individuals with various learning styles and provide activities which promote the transfer of theoretical knowledge into clinical practice. Specifically, the presenters will look at the application of critical incidents, feedback lectures, case studies, and computer assisted interactive video instruction.

LEARNING STYLES

People tend to learn predominately through one learning style, and there are several tools on the market which will determine an individual's learning style. Most of them identify four basic learning styles, and while they are given different names, most focus on 1) hypothetical-deductive reasoning, 2) creative or imaginative thinking, 3) inductive reasoning, and 4) trial and error. According to some studies, individuals with similar

learning styles tend to end up in similar professions or jobs. For instance, people in counseling tend to be creative learners, and people in science and mathematics tend to be inductive learners.

It could be assumed, then, that the majority of students in the nursing program learn predominately through one learning style. However, four nursing faculty were tested with the Kolb Learning Style Inventory, and they represented four different learning styles. The question arose as to whether they were odd, or was it just coincidence that they were in four different learning styles or were all four learning styles equally represented in nursing in general? It was then decided that to improve teaching/learning effectiveness, it would be prudent to know if nursing students have a predominate learning style. As the basic teaching methods in the nursing program are lecture/discussion and clinical (hands on) application, students who learn best by hypothetical\deductive reasoning and by trial and error have their learning needs met. The other students, however, are being forced into a learning style that is foreign to their learning behavior and, therefore, are probably not doing as well in nursing as they could. By determining the numbers of students who learn by creative thinking or inductive reasoning, different teaching methods could be employed to challenge them in a cost effective but appropriate way. Therefore, the students in the medical/surgical and capstone semesters were tested for their learning styles using a standard test. The students in these semesters were chosen because they represent students early in their nursing education and late in their nursing education. Therefore, comparison can be made to see if students change their learning style. Also, these two groups are accessible to the presenters. Although the project has just begun, this testing is part of a longitudinal study that will continue for several more years.

Interestingly, most of the nursing students at CSU, Chico are accommodators (22) and divergers (23) on the Kolb Learning Inventory. The accommodators are adaptable and solve problems by trial and error. Divergers excel in brainstorming and are imaginative. Sixteen of the nursing students were convergers (practical application and hypothetical/deductive reasoning). The remaining nine were assimilators which are the people with inductive reasoning. There were differences in the two groups, but it is unknown if these differences are because the two groups are vastly different or if students change learning styles. It could be, also, because of the "hands on" emphasis in clinical that students think they learn best this way because they feel this is "real" nursing. ("If I do it all the time, it must be the way I learn best")

The theory on learning styles was one reason for a change in teaching methods. Another reason to change is to reduce student

stress especially in the clinical setting. In the program at CSU, Chico a systems approach to medical/surgical nursing is used. Nursing students read 100-200 pages per course, plus 8-10 hours of lecture, plus 8-15 hours of clinical per week. Preparing for the clinical experience requires several hours of preparation plus 1-3 papers or logs as part of that preparation. In addition to the actual work each week, nursing students have high anxiety due to the nature of their clinical learning experience. Anyone dealing with the public knows it is difficult to keep everyone happy. This is even more difficult when "the public" is a sick patient or concerned family member. Also, many of the things nurses do cause pain or discomfort or are rather disgusting. (Never eat lunch with a nurse.) In addition, a nursing student is responsible for the patient"s life and health. Making a medication error can be life threatening and telling the instructor can devastate even the best of students no matter how understanding the instructor tries to be. All of this adds up to the stress in the clinical setting. For the new nursing student it may take 1-2 hours just to get up the courage to go into a patient's room. The attempt to reduce this student stress is another reason for a change in teaching methods.

The third reason for a change in teaching methods is the one previously mentioned. Both faculty and students tend to "tune out" during 2-3 hours lectures. Students can not assimilate information after that long. All they do is write down the instructor's words verbatim--including sneezes. The instructor, meanwhile, is thinking about the committee work that needs to be done and will her voice last another hour.

FEEDBACK LECTURE

What is the feedback lecture? That question will be answered as well some ideas on how to incorporate it into classes. The feed back lecture was created out of need. Research has shown that for a multitude of reasons, the traditional lecture may not be the best process to deliver information. For instance, a high percentage of content delivered through lecture is usually forgotten. It is dreadfully difficult to listen, let alone concentrate for 1-3 hours hearing the same voice and writing madly, making it impossible to integrate or have time to reflect on the information just obtained.

The primary goals to accomplish using the feedback lecture were:

1. integrate a method of teaching that attempted to match teaching and learning styles,
2. increase student involvement--making them active participants in the learning process.
3. increase the student's retention of the content, broaden their critical thinking process, and motivate problem-solving techniques.

While the feedback lecture sounded wonderful in theory, there were still concerns regarding how to actually implement it. To begin with, the presenters assessed what was presently being done:

1. continue with the extensive syllabus with detailed reading assignments, objectives, outlines, practice questions to answer, and practice worksheets.
2. continue with examinations oriented towards integrating theory and practical application--students must be able to apply the pathophysiological facts into their nursing care and the answers.
3. increase the use of questions to elicit information from students and to increase student participation
4. increase the use of audio-visual materials and guest lecturers
5. increase the use of analogues and real situations in the clinical setting to promote understanding of theory and discussions.

Next, the actual lecture was investigated. It was decided to break up the formal lecture in the following manner. The traditional lecture format is used for the first 35-40 minutes incorporating audio-visual materials, questions, examples, and humor. The lecture then gives the entire class a problem or activity which is directly related to the content presented and uses the nursing process. Some examples are:

Assessment

1. Identify a assessment parameters for a patient with congestive heart failure.
2. Discuss the effects of immobility on the cardiovascular or pulmonary system.

Plan

1. Develop a care plan for a patient with an acute heart attack.
2. Develop a care plan for the newly diagnosed insulin dependent diabetic.

Intervention

1. Provide a grieving spouse with time to talk and vent his//her fears and concerns.
2. Teach positions to an arthritic patient that will decrease pain during sexual intercourse.

The students then break up into pre-assigned groups of four to work on the assignment. The groups were pre-assigned, and are groups of four based on setting arrangements. This was done to reduce time spent on getting into groups. One student is the recorder and takes notes of the discussion. The students then come back to the full group and discuss their conclusion and ideas. The faculty acts as a facilitator. At the end of each class session, the groups turn in their work to be checked off by the faculty.

Thus far, the evaluations are very positive. The class

attendance has remained high, the students seem to be better prepared for the lecture. (In the past, keeping up with the reading assignments has been a major problem.) The test scores are not noticeably different. There will be continual evaluation by the students and faculty and appropriate changes will be made.

DECISION MAKING MODEL

Nursing is a practice discipline in which clinical decisions must be made which affect the patients health and, in many instances, the patient's life. Some decisions must be make quickly and acted upon immediately. In addition many of the decisions to be made are based on complex pathophysiological and biopsychosocial phenomena. To add to this dilemma is the fact that no two situations are the same.

In order to make a smooth safe transition from theory to application, simulation materials have been developed over the past 18 months. These simulations assist students (and nurses) in making decisions involving pathophysiology, nursing care and related medical data. The interest in this topic evolved as a result of experience with nursing students who had a good grasp of theory content (based on their examination scores), but also had significant difficultly functioning in the clinical setting. It was felt that this behavior was predominantly related to their inability to put "all the pieces together" in a rational manner and then make clinical decisions based on their perceptions.

The observations made on the students was not unlike the behavior described by Patricia Benner in her book From Novice to Expert in regards to decision making patterns used by nurses in various stages of their professional development.

Benner describes the novice nurse as most frequently using context-free rules to guide his/her actions. The novice nurse possesses objective information which can be recognized clinically, but has no situational experience. Typically, the novice will exhibit rule-governed behavior which for professional nursing is extremely limited and inflexible. Further, this behavior undermines performance, because rules do not address the relevancy of tasks performed in a given situation. As a result, this person has limited ability to prioritize and function.

Having described the novice, consider the other end of the continuum, the expert nurse. The expert can be defined as a nurse who has an intuitive grasp of situations and can focus in on problems and solutions. This is not to imply that the expert nurse never makes mistakes. Rather it is said in reference to his/her perceptual acuity. It is supported in the literature that experience is one of the key factors in one's ability to make sound clinical decisions. This premise is based on

encounters with many actual, practical situations. It is the belief of the presenters that experiences which can assist the novice in moving to expert can also be obtained through the use of simulated clinical encounters.

To assist students in obtaining clinical experiences through simulation, a format has been developed in which students use a decision making model to work through assigned clinical problems. This use of simulations allows the students to apply knowledge and practice making decisions. A very desirable feature of this format is the fact that students can make these decisions in a controlled environment, without injuring patients, thus decreasing stress for students (and instructor) and, thereby, increasing learning.

The model that has been designed was adapted from the 1982 Bailey and Hendricks decision making model. The goal of the model is to make the decision making process instinctive. Using the model, there are two types of decisions the learner will be asked to make: given a scenario, the learner must decide either 1) what additional data is needed or 2) what solutions would be most appropriate in the described situation. If a situation required a data gathering mode, the nurse must brainstorm to determine appropriate assessment parameters encompassing biopsychosocial dimensions. If the situation requires an immediate solution, the student must brainstorm for all possible solutions to the problem. After all feasible solutions have been considered, the student compares alternatives and evaluates the solution based on feasibility, legality, safety, and ethical considerations. From this evaluation comes the optimal solution which the student would put into practice.

CRITICAL INCIDENTS

Simulated clinical encounters have been designed for use in small group settings, usually post clinical conferences. To begin the process, a facilitator, (usually the facutly member), briefly introduces a patient. This introduction sets the scene for upcoming problems. The introduction should include the patient's age, medical diagnosis, physical setting, and the role of the nurse. The introduction is followed by a series of situations, for which the student must purpose some type of intervention.

The clinical situations can be used to target specific theoretical content or to stimulate general discussion of topics being presented. The facilitator prepares questions in advance of the group meeting. During the conference the patient is introduced and the questions are read aloud. The participants use the decision making model to brainstorm, compare alternatives and select optimal solutions. The facilitators role is to provide feedback and to encourage the students to think about why they are doing these interventions.

Another variation to this process is to have all participants contribute situations or questions for discussion. This approach will assure that the content discussed is at the level of the student. The process described not only provides students with simulated clinical experiences, but also facilitates peer evaluation. It appears to be an effective teaching/learning tool, and so far the response from students has been extremely positive.

COMPUTER ASSISTED INTERACTIVE VIDEO INSTRUCTION IN NURSING

In January, the presenters and John Ittelson, from the College of Communication Design, started working on a computer assisted interactive video instruction in nursing (CAIVIN) project. Interactive video is an excellent media for nursing. It combines the computer with video. In setting up critical incidents or case studies, it is important for students to pick up on subtle ques and physical findings. However, it is difficult to get students to discover these things in simulation without making it very obvious. With interactive video, subtle body movements and skin color changes can be shown and then the student can be evaluated on how well he/she discovers them. For the beginning student, hints can be given on what the student should be looking for and assessing. As the student gains experience and maturity, the hints/ques can be removed, challenging the advanced student. It can be set up so the student can activate it with little or no computer knowledge, or it can be set up to teach the student about the computer as well as the simulation.

While our goal is to do a series of CAIVI projects, the one in progress at this time is on decision making. It gives the student a scenario about an elderly woman who is three days post surgery and has developed difficulty breathing over the last several hours. The student is given several choices and given feedback on why her choices are or are not correct. Progression through the program is based on the ultimate selection of appropriate assessment and intervention strategies.

CASE STUDIES

Semester V is the last semester of the nursing program and, with few exceptions, the last semester before nursing students enter the work force. The students have two main emphasis in this semester; community health and integrated nursing. Integrated nursing is a capstone course which incorporates all of the student's past learning experiences. The syllabus for this class, contains 8-10 case studies in medical-surgical, maternal-child nursing. To date none of the case studies has a patient with the major diagnosis of a psychiatric disorder, but all of them have situational depression problems. Several of the case

studies have chemical dependence and suicide problems involved with the medical, maternal, or pediatric problems. All case studies are real people and have multisystem involvement. For instance, there are diabetics with heart, eye, and kidney involvement, children with cerebral palsy, retarded, blind, and frequent seizure; a pregnant woman complications of pregnancy or diabetes. The case studies include history and physical, consultations, radiology, and laboratory findings.

Students are expected to come to seminar prepared to explain all the pathophysiologies involved, nursing care from hospital admission to community follow up, and laboratory and radiology results and implications. Social problems and ethical issues are also discussed. The faculty member acts as a facilitator and clarifier.

This one unit seminar is only part of this integrated nursing package. There is also a two unit clinical practicum. Students spend twelve hours a week for eight weeks in the hospital on the unit of their choice (if possible). The only units not allowed are the operating room and emergency room as these two areas do not have an integrated, long-term focus.

These courses are only in their third semester of existence. To date student evaluations are very positive. The students feel that the case study approach really pulls the entire nursing program together for them. They also feel it is an excellent review for the state board examination.

This presentation has covered a few of the things being done in the nursing program at CSU, Chico to get students more involved and active as participants in the learning process which will facilitate decision making in clinical practice. Most of these things are fairly new and as the faculty, and the students, gain more experience in these teaching methods, they will be refined and changed.